

Claims

1. A mechanical power system, comprising:

at least two power disc elements mounted for rotation about a central axis, wherein the first power disc element includes a first peripheral gear portion in the vicinity of the rim thereof by which the first power disc element is turned;

a first system gear, mounted on a first system shaft which is offset from the central axis for turning the first power disc element;

wherein the first power disc element has a second peripheral gear portion in the vicinity of a forwardly extending rim portion thereof, and wherein the second power disc element has a plurality of outer drive gear members rotatably mounted to a rear surface thereof and positioned so as to mate with the second peripheral gear portion on the first power disc element;

a central gear which is mounted so as to be fixed relative to the central axis and which is further mounted to mate with the outer drive gears on the second power disc element, such that rotation of the first system gear results in the rotation of the first and the second power disc members; and

a second system gear mating with a peripheral gear portion of the second power disc element, located in the vicinity of the rim of the second power disc element, the second system gear mounted on a second system shaft which is offset from the central axis, wherein in operation a power change results between first and second system shafts in operation of the mechanical power system.

2. The system of claim 1, wherein the first and second power disc elements are mounted for rotation on a central shaft and the central gear is fixed to the central shaft.

3. The system of claim 1, wherein the plurality of outer drive gears comprise three outer drive gears, approximately all the same size.

4. The system of claim 3, wherein the central gear is approximately the same size as the outer drive gears.

5. The system of claim 1, wherein the first and second power disc members are circular and have a diameter approximately three times the diameter of the outer drive gears and the central gear.

6. The system of claim 2, wherein the central shaft is fixed.

7. The system of claim 1, wherein the first peripheral gear portion is on an interior peripheral rim surface of the first power disc member and wherein the peripheral gear portion of the second power element is on an interior peripheral rim surface of the second power member.

8. The system of claim 1, wherein the first peripheral gear portion is on an exterior peripheral rim surface of the first power disc member.

9. The system of claim 7, wherein the peripheral gear portion of the second power disc member is on an exterior rim surface thereof.

10. The system of claim 1, wherein an electric motor drives the first system shaft and the second system shaft drives an electric power generator.

11. The system of claim 1, wherein the second system shaft is driven by an electric motor and the first system shaft drives an electric power generator.

12. The system of claim 1, wherein the second power disc element, the outer drive gear members and the central gear define a power disc assembly, and wherein the system includes a plurality of

power disc assemblies between the first and second power disc elements.

13. The system of claim 9, wherein said two power disc elements, said plurality of outer drive gear and said central gear define a first power system assembly, and wherein said power system comprises a plurality of power system assemblies, arranged so that a second power disc element of each power system assembly drives the first power disc element of a next successive power system assembly, by mating of the peripheral gear portions on said power disc elements.

14. The system of claim 1, including a first electric motor driving the first system shaft of a first power system, a battery and inverter circuit for powering the first electric motor, a charging system for the battery, an electric power generator powered by the first power system, the generator providing electric power to the charging system, a second electric motor powered by the electric power generator, a second power system driven by the second electric motor, and a vehicle transmission driven by the second power system, the transmission being adapted to drive a vehicle.

15. A mechanical power system, comprising:

at least two power disc elements mounted for rotation on a central shaft, wherein a first power disc element includes a first gear portion by which the first power disc element is turned, wherein the first power disc element has a second forwardly extending gear portion in the vicinity of a rim portion thereof, and wherein a second power disc element has a plurality of outer drive gear members rotatably mounted to a surface thereof, positioned to mate with the second gear portion of the first power element; and

a central gear which is fixed to the central shaft and mates with the outer drive gears on the second power disc element, such that rotation of the first power disc element results in rotation of the second power disc element, and transfer of power to the second power disc element, wherein the second power disc element has a gear portion in the vicinity of a rim portion thereof for

driving a takeoff assembly, wherein in operation a power change results between the first and second power discs.

16. The system of claim 15, including a first system gear, mounted on a first system shaft which is offset from the central shaft, for driving the first power disc element, and wherein the takeoff assembly includes a second system gear, mounted on a second system shaft which is offset from the central shaft.

17. The system of claim 15, wherein the plurality of outer drive gears comprise three outer drive gears, approximately all the same size.

18. The system of claim 17, wherein the central gear is approximately the same size as the outer drive gears.

19. The system of claim 15, wherein the first and second power disc members are circular and have a diameter approximately three times the diameter of the outer drive gears and the central gear.

20. The system of claim 15, wherein the first peripheral gear portion is on an interior peripheral rim surface of the first power disc member, and wherein the peripheral gear portion of the second power element is on an interior peripheral rim surface of the second power disc member.

21. The system of claim 15, wherein the second power disc element, the outer drive gear members and the central gear define a power disc assembly, and wherein the system includes a plurality of power disc assemblies between the first and second power disc elements.

22. A mechanical power system, comprising:

at least two power disc elements mounted for rotation on a central shaft, wherein a first power disc element includes a first gear portion by which the first power disc element is turned,

wherein the first power disc element has a second forwardly extending gear portion in the vicinity of a rim portion thereof, and wherein a second power disc element has at least one outer drive gear member rotatably mounted to a surface thereof, positioned to mate with the second gear portion of the first power element; and

a central gear which is fixed to the central shaft and mates with the outer drive gear on the second power disc element, such that rotation of the first power disc element results in rotation of the second power disc element, and transfer of power to the second power disc element, wherein the second power disc element has a gear portion in the vicinity of a rim portion thereof for driving a takeoff assembly, wherein in operation a power change results between the first and second power discs.